

REMARKS

Reconsideration and further examination are respectfully requested.

Amendments to the Specification

Applicant has amended the paragraph spanning pages 9 and 10 of the specification to provide consistency with Figure 4 of the application. No new matter has been entered by way of this amendment.

Allowable claims

The Examiner has indicated that claims 3-8, 10-12, 14 and 15 would be allowable if rewritten in independent form including all limitations of the base claims and any intervening claims. The Examiner is thanked for the indications of allowability. Applicants have amended claim 9 to include the limitations of claim 10, and cancelled claim 10. Applicants have amended claims 11 and 12 to include the limitations of the parent claim 9. Applicants have amended claim 13 to include the limitation of claim 14 and cancelled claim 14. Applicants have amended claim 15 to include the limitation of claim 13. It is therefore submitted that claims 9, 11, 12, 13 and 15 are in condition for allowance.

Applicants believe that the remaining claims are also in condition for allowance for reasons that will be described below with regard to the claim rejections.

Rejections under 35 U.S.C. §102(e)

Claims 1, 2, 9, 13 and 16-22 were rejected under 35 U.S.C. §102(e) as being anticipated by Prieto, Jr., et al. (U.S. Pat. 7,002,918).

Prieto:

Prieto describes a method and apparatus for scheduling, in real-time, the order in which data packets from multiple uplink channels are organized in a downlink channel of a satellite communications network. In particular, Prieto uses a packet service schedule such as that shown in Figure 3. Prieto describes the schedule at column 7 lines 43-50:

“...FIG. 3 illustrates an exemplary packet service schedule 200 comprised of multiple columns including a time index column 202, a relative time column 204 and a priority index column 206. The packet service schedule 200 is divided into rows. Each row corresponds to a time slot 208 in the master frame. In the example of FIG. 3, time index 0 corresponds to relative time 0 and time slot 1. Time slot 1 has been assigned to queue Q1. Similarly, time indices 1, 2 and 3 indicate that queues Q2, Q3 and Qn have been allocated to the second, third and fourth time slots 210, 212 and 214. ...The scheduler controls the percentage of bandwidth to be allocated to each of queues Q1 Qn. Based on these bandwidth percentage allocations, the scheduler assigns each time slot to a particular queue Q1 Qn. For instance, if queue Q1 is allocated 25% of the total bandwidth, then the CPU 154 will assign 25% of the time slots 208 to queue Q1. Preferably, the time slots assigned to queue Q1 will be evenly distributed throughout the master frame and packet service schedule 200....”

Thus Prieto teaches a service schedule in which different queues are scheduled into fixed time slots.

In contrast, in the present invention the decision to select from one of multiple data sources (e.g., queues) may be made dynamically; the claimed invention provides a time slot vector for each data source; the time slot vector includes a bit for each time slot representing the availability of the time slot to the particular data source. At each time slot, the plurality of vectors can be examined to determine the availability of the time slot to each of the data sources. This information is used together with other information to select a data source based on a variety of dynamic system conditions. The Examiner is referred to Figure 4 and pages 7-11 of Applicant's specification which describes several elements and features of applicant's invention. As described at page 11 of Applicants specification, the present invention overcomes the

problem of prior art implementations such as Prieto's by providing a window in which balanced bandwidth traffic can be served, while still maintaining the service levels.

Applicants have amended the claims to more clearly highlight the fact that *each data source* has its own time slot vector. Such a structure is fundamentally different from Prieto. For example, independent claim 1, as amended, now recites "... providing *a plurality of vectors, each vector associated with one of the plurality of data sources*, each vector comprising a series of N bits, where each bit corresponds to one of N time slots, *each bit representing whether the associated one of the plurality of data sources is assigned to the corresponding time slot...*" No equivalent structure is described or suggested by Prieto. Dependent claims 2-8 serve to further limit claim 1 and are therefore allowable with claim 1.

Independent claim 16 has also been amended to more clearly recite the vector structure of the present invention. For example, claim 16, as amended now recites "...a selector, coupled to the plurality of queues, the selector for selecting one of the plurality of queues to provide data to an output, the selector comprising a control structure including a plurality of vectors, each vector associated with one of the plurality of queues and comprising a number of bits corresponding to a number of time slots..." Accordingly, claim 16 is distinguished from Prieto and it is requested that the rejection be withdrawn. Dependent claims 17-22 serve to further limit claim 16 and are allowable for at least the same reason as claim 16.

Rejections under 35 U.S.C. §103

Claims 23-29 were rejected under 35 U.S.C. §103(a) as being unpatentable over Prieto in view of Opalka (U.S. Patent 6,259,699).

Opalka:

Opalka describes a networking architecture and technique for transmitting both cells and packets or frames across a common switch fabric, effected, at least in part, by utilizing a common set of algorithms for the forwarding engine (the ingress side) and a common set of algorithms for the QoS management (the egress part) that are provided for each I/O module to process packet/cell information without impacting the correct operation of ATM switching and without transforming packets into cells for transfer across the switch fabric. (Opalka, Abstract).

The Examiner states, at page 5 of the office action:

“... Prieto discloses all limitations except for a network line card comprising an ingress data path ... and an egress data path However, Opalka discloses a switching system comprising both ingress and egress data path Thus it would have been obvious to ... employ the networking line card as taught by Opalka into Prieto’s system since such line card is well known in the art and can be easily implemented with hardware...”

Applicant’s argument

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The combination of Prieto and Opalka fails to meet the *prima facie* burden for establishing obviousness for at least the below reasons.

No Motivation for the modification suggested by the Examiner

Before setting forth a discussion of the prior art applied in the Office Action, it is noted that the United States Supreme Court recently addressed the motivation/reason requirement that an Examiner must satisfy in order to determine that the subject matter of a claim is obvious based on the combination of two or more references. Specifically, in the ruling in *KSR International Co. v. Teleflex Inc. et al.*, 550 U.S. (2007), the United States Supreme Court stated:

"Often, it will be necessary ... to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was **an apparent reason** to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, **this analysis should be made explicit**. ... it can be **important to identify a reason** that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." (emphasis added)

It is further noted that the opinion of the United States Supreme Court is explicitly mandated in the USPTO memo to the Technology Center Directors from Margaret A. Focarino, Deputy Commissioner for Patent Operations, on May 3, 2007, which states:

"Therefore, in formulating a rejection under 35 U.S.C. § 103(a) based upon a combination of prior art elements, **it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed.**" (emphasis added).

The Examiner's stated motivation is that 'such line card is well known in the art and can be easily implemented...' Such a motivation is insufficient. As has been well established, and appears to be upheld in the above paragraph, a statement that modifications of the prior art to meet the claimed invention would have been "well within the ordinary skill of the art at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie*

case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). Applicant's respectfully submit that the motivation provided by the Examiner amounts to no more than a statement that the elements were well known in the art, which has been shown by Levengood to be insufficient.

However, there are further reasons why no motivation can be found for the suggested modification. In particular, Applicant's note that Prieto deals with a satellite communication network, and states at column 4, lines 6 that 'a scheduler is provided in the satellite for allocating bandwidth...' The scheduler of Prieto appears to be a software based scheduler. The suggested modification of the Examiner is to replace the software schedule with a line card. Applicants respectfully submit that one would not be so motivated because of the increased difficulty in maintaining satellite hardware versus the relative ease of loading look-up tables for satellite software, as is suggested by Prieto.

Accordingly, for the additional reason that the modification suggested by the Examiner would serve to frustrate Prieto, and the likelihood of success is questionable, it is submitted that there is no motivation for the suggested modification.

Combination neither describes no suggests the claimed invention

However, even if a motivation could be found for modifying the references to include a line card, the combination of references still would neither describe nor suggest the limitations of claim 23. As described above with regard to the §102 rejection, Prieto fails to describe 'a plurality of vectors... each vector associated with one of the input queues...' The combination of Opalka with Prieto fails to overcome this basic inadequacy. Independent claim 23 has been amended in a manner similar to claims 1 and 16. Independent claim 23 as amended now recites

“...a control structure including a plurality of vectors, each vector associated with one of the plurality of queues and comprising a number of bits corresponding to a number of time slots for indicating an availability of the time slot to the associated queue...” Accordingly, claim 23 is distinguished from Prieto and it is requested that the rejection be withdrawn. Dependent claims 24-29 serve to further limit claim 22 and are allowable for at least the same reason as claim 22.

Conclusion:

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Applicants' Attorney at the number listed below so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,

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